

REMARKS/ARGUMENTS

In a non-final Office Action mailed December 15, 2006, the Examiner in charge of the above-identified application rejected the pending claims for the following reasons. Claims 5-7 and 9-11 are rejected under 35 U.S.C. § 102(e) and under the doctrine of non-statutory obviousness-type double patenting. Applicants respond below to the issues presented in the Office Action. In view of the amendments noted above and the arguments presented herein, applicants respectfully request reconsideration of the merits of this application.

Amendments to the Claims

Claims 5 and 9 are amended to clarify the type of microarray synthesis instrument. Support for this amendment is located for example, in paragraphs [00013] and [00023] of the above-identified application.

Rejections Under 35 U.S.C. § 102(e)

Claims 5-7 and 9-11 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,589,726 by Butler *et al.* The Examiner alleges that Butler *et al.* anticipate the pending claims by teaching a method and apparatus for *in situ* synthesis on solid supports, such that the solid support utilizes differences in surface tension (i.e. patterned hydrophilic and hydrophobic sites) to provide reaction sites. Applicants disagree.

Butler *et al.* does not show synthesis of microarrays, including the hydrophobic sites, via a maskless array synthesizer instrument. As noted in applicants' previous response, Butler *et al.* discloses methods for fabricating solid supports (i.e., arrays) for *in situ* polynucleotide synthesis. Butler *et al.*'s array fabrication methods use photoresist substances, such as, an optical positive photoresist substance or an E-beam positive photoresist substance, to coat the support surface (substrate) and to act as a physical barrier separating the hydrophilic and hydrophobic derivatization processes. (*see* Butler *et al.* at col. 10, line 14; col. 14, line 37; and Claims 1-2.)

By contrast, applicants affirmatively recite in the specification that the hydrophobic barrier is constructed using a MAST™ instrument without prior special treatment of the substrate. A digital micromirror device (DMD) is used to direct light to the location of the

hydrophobic barrier. This characteristic allows the hydrophobic barrier to be constructed in place by the MASTTM instrument itself without prior treatment of the substrate. (*see, e.g.*, paragraphs [0013]-[0015] of the above-identified application). This approach facilitates efficient fabrication of array probe sets and hydrophobic areas surrounding the subarrays to be performed with great precision, without moving the substrate or losing alignment. In view of the amendments and remarks, applicants respectfully request reconsideration of this rejection as applied to Claims 5-7 and 9-11.

Provisional Non-Statutory Obviousness-Type Double Patenting

Claims 5-7 and 9-11 stand provisionally rejected under the judicially created doctrine of non-statutory obviousness-type double patenting in view of Claim 16 in co-pending U.S. Patent Application No. 10/674,768 (the '768 application, filed Sept. 30, 2003). Applicants respectfully disagree.

Applicants once again acknowledge the provisional rejection and the suggestion of filing a terminal disclaimer. However, applicants continue to maintain that the provisional double patenting rejection is not only premature, but simply unwarranted.

While applicants acknowledge that the disclosure of the '768 application mentions the concept of hydrophobic barriers, the claims of the '768 application and the claims of the present application are quite distinct and not overlapping. In fact, the claims of the '768 application are directed to methods for loading samples onto an array, while the methods of the present invention are directed at methods for fabricating arrays with hydrophobic barriers using maskless array synthesizer instruments. There are limitations in the claims of each case not in the claims of the other and the Examiner has not demonstrated why these differences are obvious. Not only are the elements of the claims different, one method necessarily precedes that of the other. Specifically, the arrays must first be fabricated before samples can be parallel loaded on the array. Thus, the two technologies are distinct and not obvious one in view of the other.

In addition, applicants question whether the provisional rejection is even proper given that the filing date of the above-identified application is before that of the '768 application. It is noted the current application has a filing date of September 29, 2003. Whereas, the '768 application has a filing date of September 30, 2003. Accordingly, the '768 application was

Application No.: 10/673,760
Response Dated: December 29, 2006
Reply to Office Action dated: December 15, 2006

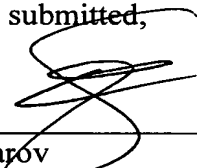
filed one (1) day after the current application. Applicants are unclear as to how a terminal disclaimer is appropriate in this case because a disclaimer could inappropriately extend the term of the current application. Thus, it is believed this rejection is misplaced and should be withdrawn.

In view of these remarks, Applicants respectfully request reconsideration of the rejection and request prompt and favorable consideration of this response and that a timely Notice of Allowance be issued in this case.

Fees

No fee is believed due in connection with this submission. However, if a fee is due, in this or any subsequent response, please charge the fee to Deposit Account No. 17-0055. Likewise, no extension of time is believed due, but should any extension be required in this or any subsequent response, please consider this to be a petition for the appropriate extension of time and a request to charge the petition fee due to the same Deposit Account.

Respectfully submitted,



Sara D. Vinarov
Reg. No. 48,524
Attorney for Applicants
QUARLES & BRADY LLP
P O Box 2113
Madison, WI 53701-2113

TEL 608-251-5000
FAX 608-251-9166